

WHAT IS CLAIMED IS

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1. A data communication method for exchanging data among a plurality of computers which are mutually coupled via a network,

each of the computers comprising a program which
10 causes the computer to have a communicating function to transmit and receive data to and from one or more other computers, a data processing function to process data which are transmitted and received, and an output function to output data to an output section depending
15 on a process of the data processing function,

said data communication method comprising:

a storing step to store data received by the communicating function by the data processing function in one computer when receiving data from one or more
20 other computers by the communicating function; and

a mode judging step to judge whether or not to output the received data to the output function of said one computer depending on a mode attribute of the received data and a communication mode of said one
25 computer.

2. The data communication method as claimed in claim 1, further comprising:

a public mode receiving step to immediately output the received data to the output function of said one

5 computer when said mode judging step judges that the mode attribute of the received data indicates a public mode and said one computer is in the public mode; and

a local mode receiving step which does not output the received data to the output function of said one

10 computer when said mode judging step judges that the mode attribute of the received data indicates the public mode but said one computer is in a local mode.

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3. The data communication method as claimed in claim 2, wherein each of the computers has a private mode in which data is exchanged between specific

20 computers coupled to the network, said data communication method further comprising:

a private mode receiving step which does not output the received data to the output function of said one computer when said mode judging step judges that the

25 mode attribute of the received data indicates the public

mode but said one computer is in the private mode.

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4. The data communication method as claimed
in claim 1, wherein each of the computers exchanges data
related to content information using an encapsulated
document, said encapsulated document comprising a
10 program code file related to the communicating function,
the data processing function and the output function
which are analyzed and executed by each of the computers
and a content information file related to substance data
of a document, which files are encapsulated as a single
15 document.

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5. The data communication method as claimed
in claim 1, wherein each of the computers comprises a
program which causes the computer to have an operation
information acquiring function to acquire operation
information related to a user operation, and the data
25 transmitted and received by the communicating function

includes the operation information acquired by the operation information acquiring function.

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6. The data communication method as claimed in claim 5, further comprising:

a public mode transmitting step to continuously
10 transmit the operation information to the communicating
function as public information in response to
acquisition of the operation information by the
operation information acquiring function of said one
computer in a public mode, when said one computer
15 transmits data to another computer by the communicating
function.

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7. The data communication method as claimed in claim 1, further comprising:

a local mode transmitting step to prohibit
transmission of data from said one computer in a local
25 mode.

8. The data communication method as claimed in claim 3, further comprising:

5 a private mode switching step to automatically switch the communication mode of said one computer to the private mode when the communicating function of said one computer receives data unicasted from another computer.

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9. The data communication method as claimed in claim 3, further comprising:

15 a private mode switching step to automatically switch the communication mode of said one computer to the private mode when the communicating function of said one computer transmits data to a specific computer.

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10. The data communication method as claimed in claim 5, further comprising:

25 a data transmission waiting step to wait transmission of data in a private mode until the

operation information acquiring function of said one computer acquires the operation information for transmitting the data to a specific computer.

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11. The data communication method as claimed in claim 5, wherein each of the computers comprises a
10 program which causes the computer to have a mode selecting function to switch the communication mode to a selected communication mode by accepting a user operation, and said mode judging step judges the communication mode of said one computer based on the
15 selected communication mode accepted by the mode selecting function of said one computer.

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12. The data communication method as claimed in claim 11, further comprising:

a mode switching step to switch the communication mode of said one computer to the selected communication
25 mode after storing the data output to the output section

at a time when the user operation is made, if the
operation information acquiring function of said one
computer acquires the operation information related to
switching of the communication mode by the mode
5 selecting function.

10 13. The data communication method as claimed
in claim 11, further comprising:

a switching time output control step to refer to
newest data stored for the selected communication mode
and to output the newest data to the output section by
15 the output function of said one computer, when switching
the communication mode to the selected communication
mode by the mode selecting function of said one computer
after the operation information acquiring function of
said one computer acquires the operation information
20 related to the switching of the communication mode to
the selected communication mode.

14. The data communication method as claimed in claim 11, further comprising:

an information request command transmitting step to transmit, using the communicating function of said one
5 computer, an information request command which requests newest data for a public mode with respect to a program running on another computer, if the operation information acquiring function of said one computer
10 acquires operation information related to the switching of the communication mode to the public mode by the mode selecting function of said one computer.

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15. The data communication method as claimed in claim 14, wherein said information request command transmitting step determines the computer at a
transmitting destination where the information request
20 command is to be transmitted, by selecting the computer from a list of communicatable computers held by said one computer.

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16. The data communication method as claimed in claim 15, further comprising:

5 a first substituting step to refer to newest data for the public mode held in said one computer and to output the newest data to the output section by the output function of said one computer, if the list includes no computer to which the information request command is to be transmitted.

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17. The data communication method as claimed in claim 16, further comprising:

15 a second substituting step to refer to newest data for a local mode held in said one computer and to output the newest data to the output section by the output function of said one computer, if the list includes no computer to which the information request command is to
20 be transmitted and the newest data for the public mode is not held in said one computer.

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18. The data communication method as claimed in claim 15, further comprising:

an information request command responding step to transmit the newest data for the public mode stored in said one computer using the communicating function of said one computer, with respect to another computer at a transmitting source of the information request command, if the communicating function of said one computer receives the information request command.

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19. A data communication apparatus for exchanging data with a plurality of apparatuses via a network, comprising:

a computer comprising a program which causes the computer to have a communicating function to transmit and receive data to and from the apparatuses, a data processing function to process data which are transmitted and received, and an output function to output data to an output section depending on a process of the data processing function;

a storing section to store data received by the communicating function by the data processing function.

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when receiving data from one of the apparatuses by the communicating function; and

a mode judging section to judge whether or not to output the received data to the output function

5 depending on a mode attribute of the received data and a communication mode of said data communication apparatus.

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20. The data communication apparatus as claimed in claim 19, further comprising:

a public mode receiving section to immediately output the received data to the output function when
15 said mode judging section judges that the mode attribute of the received data indicates a public mode and said data communication apparatus is in the public mode; and

a local mode receiving section which does not output the received data to the output function when
20 said mode judging section judges that the mode attribute of the received data indicates the public mode but said data communication apparatus is in a local mode.

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21. The data communication apparatus as
claimed in claim 20, which has a private mode in which
data is exchanged with a specific apparatus coupled to
the network, said data communication apparatus further
5 comprising:

a private mode receiving section which does not
output the received data to the output function when
said mode judging section judges that the mode attribute
of the received data indicates the public mode but said
10 data communication apparatus is in the private mode.

15 22. The data communication apparatus as
claimed in claim 19, which exchange with the apparatuses
data related to content information using an
encapsulated document, said encapsulated document
comprising a program code file related to the
20 communicating function, the data processing function and
the output function which are analyzed and executed by
said data communication apparatus and the apparatuses
and a content information file related to substance data
of a document, which files are encapsulated as a single
25 document.

23. The data communication apparatus as claimed in claim 18, further comprising:

a list displaying section to display a list of operation records for each communication mode.

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24. The data communication apparatus as claimed in claim 19, further comprising:

a past data inspecting section to enable looking back at operation information related to the data communication apparatus, transmitted and received data in a public mode, and transmitted and received data in a private mode, based on the stored data, at any time during the local mode.

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25. A data communication system for exchanging data among a plurality of computers which are mutually coupled via a network,

each of the computers comprising a program which causes the computer to have a communicating function to

transmit and receive data to and from one or more other computers, a data processing function to process data which are transmitted and received, and an output function to output data to an output section depending
5 on a process of the data processing function,

each one of the computers receiving data by the communicating function comprising:

a storing section to store data received by the communicating function by the data processing
10 function; and

a mode judging section to judge whether or not to output the received data to the output function of said one computer depending on a mode attribute of the received data and a communication mode of said one
15 computer.

20 26. The data communication system as claimed in claim 25, further comprising:

a public mode receiving section to immediately output the received data to the output function of said one computer when said mode judging section judges that
25 the mode attribute of the received data indicates a

public mode and said one computer is in the public mode;
and

a local mode receiving section which does not
output the received data to the output function of said
5 one computer when said mode judging section judges that
the mode attribute of the received data indicates the
public mode but said one computer is in a local mode.

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27. The data communication system as claimed
in claim 26, wherein each of the computers has a private
mode in which data is exchanged between specific
15 computers coupled to the network, said one computer
further comprising:

a private mode receiving section which does not
output the received data to the output function of said
one computer when said mode judging section judges that
20 the mode attribute of the received data indicates the
public mode but said one computer is in the private mode.

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28. The data communication system as claimed
in claim 25, wherein each of the computers exchanges
data related to content information using an
encapsulated document, said encapsulated document
5 comprising a program code file related to the
communicating function, the data processing function and
the output function which are analyzed and executed by
each of the computers and a content information file
related to substance data of a document, which files are
10 encapsulated as a single document.

15 29. A computer-readable storage medium which
stores a program for causing a computer to exchange data
with a plurality of other computers which are mutually
coupled via a network, said program causing the computer
to comprise:

20 a communicating function to transmit and receive
data to and from one or more other computers;

a data processing function to process data which
are transmitted and received;

an output function to output data to an output
25 section depending on a process of the data processing

function;

a storing function to store data received by the communicating function by the data processing function when receiving data from one or more other computers by
5 the communicating function; and

a mode judging function to judge whether or not to output the received data to the output function depending on a mode attribute of the received data and a communication mode of the computer.

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30. The computer-readable storage medium as
15 claimed in claim 29, wherein said program further causes the computer to comprise:

a public mode receiving function to immediately output the received data to the output function when said mode judging function judges that the mode
20 attribute of the received data indicates a public mode and the computer is in the public mode; and

a local mode receiving function which does not output the received data to the output function when said mode judging function judges that the mode
25 attribute of the received data indicates the public mode

but the computer is in a local mode.

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31. The computer-readable storage medium as claimed in claim 30, wherein each of the computers has a private mode in which data is exchanged between specific computers coupled to the network, said program further
10 causing the computer to comprise:

a private mode receiving function which does not output the received data to the output function when said mode judging function judges that the mode attribute of the received data indicates the public mode
15 but the computer is in the private mode.

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